Solve Linear Equations Worksheets

For each of the following problems, write an equation and solve.

1. A right triangle is described as having an angle of measure six less than negative two times a number, another angle measure that is three less than negative one-fourth the number, and a right angle. What are the measures of the angles in degrees?

2. One angle is one less than six times the measure of another. The two angles are complementary angles. Find the measure of each angle in degrees.

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1. A right triangle is described as having an angle of measure six less than negative two times a number, another angle measure that is three less than negative one-fourth the number, and a right angle. What are the measures of the angles in degrees?

Let x be a number. Then, the measure of one angle is $-2x-6$. The measure of the other angle is $-\frac{x}{4}-3$. The sum of the two angles must be $90°$.

$$-2x-6+\left(-\frac{x}{4}\right)-3=90$$

$$\left(-\frac{8x}{4}\right)+\left(-\frac{x}{4}\right)-9=90$$

$$\left(-\frac{9x}{4}\right)-9+9=90+9$$

$$-\frac{9x}{4}=99$$

$$-9x=396$$

$$x=-44$$

Replacing x with -44 gives $-2x-6$ gives $-2(-44)-6=88-6=82$. Replacing x with -44 in $-\frac{x}{4}-3$ gives $90-82=8$. Therefore, the angle measures are $82°$ and $8°$.

2. One angle is one less than six times the measure of another. The two angles are complementary angles. Find the measure of each angle in degrees.

Let x be the measure of the first angle. Then, the measure of the second angle is $6x-1$. The sum of the measures will be 90 because the angles are complementary.

$$x+6x-1=90$$

$$7x-1=90$$

$$7x-1+1=90+1$$

$$7x=91$$

$$x=13$$

The first angle is x and therefore measures $13°$. Replacing x with 13 in $6x-1$ gives $6(13)-1=78-1=77$. Therefore, the second angle measure is $77°$.